Magnesium alloy having superior elevated-temperature properties and die castability

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A magnesium based alloy exhibiting superior elevated-temperature properties such as creep resistance and tensile strength and die castability such as reduced hot-cracking and die-sticking, contains about 2 to 9 wt.% aluminum, 6 to 12 wt.% zinc, 0.1 to 2.0 wt.% calcium, optionally 0.2 to 0.5 wt.% manganese, and the balance comprising magnesium. The alloy includes the intermetallic compound Mg-Al-Zn-Ca at the grain boundaries of the magnesium crystals. The alloy according to this invention may have a creep extension of less than about 0.6% at the tensile stress of about 35 MPa and the temperature of about 150 DEG C, and a tensile yield strength of at least 110 MPa at the temperature of about 150 DEG C. The alloy is particularly useful in die casting application.

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